Claims: V-6741

1.

An electrochemical cell having an electrolyte which comprises a solute, a solvent, and an additive; said solute consisting essentially of a salt of lithium; said solvent consisting essentially of one or more aprotic, polar solvents, and said additive being a dialkylamide.

2.

The cell according to claim 1 wherein said dialkylamide is N,N-dimethylacetamide (DMAC).

3.

The cell according to claim 1 wherein said aproctic, polar solvent is selected from the group consisting of carbonates; lactones; propionates; five member heterocyclic ring compounds; and organic solvent compounds having a low alkyl (1-4 carbon) group connected through an oxygen to a carbon, and comprising C-O-C bonds.

4.

The cell according to claim 1 wherein the carbonate is selected from the group consisting of propylene carbonate (PC), ethylene carbonate (EC), methyl ethyl carbonate (MEC), diethyl carbonate (DEC), dipropyl carbonate (DPC), dimethyl carbonate (DMC), butylene carbonate (BC), dibutyl carbonate (DBC), and vinylene carbonate (VC).

5.

The cell according to claim 1 wherein said one or more aprotic, polar solvent compounds has a carbon connected through an oxygen to another carbon, and said additive being an N,N-dialkylamide.

6.

The cell according to claim 1 wherein said solvent consists of ethylene carbonate (EC), dimethyl carbonate (DMC) and dimethylacetamide (DMAC).

7.

The cell according to claim 1 wherein said solvent consists of ethylene carbonate (EC), dimethyl carbonate (DMC) dimethylacetamide (DMAC), and ethyl propionate (EP).

8.

The cell according to claim 2 wherein said DMAC is present in an amount by weight of up to 20% of said solvent.

9.

The cell according to claim 8 wherein said DMAC is present in an amount by weight of 0.1% to 5% of said solvent.

10.

A method for reducing decomposition of an electrolyte solution and for reducing the formation of gaseous constituents in an electrochemical cell, said method comprising including in said cell a dialkylamide additive, whereby said cell having said additive is characterized by a lesser rate of gas formation during cycling of said cell as compared to a similar cell without said additive.

11.

A method for reducing decomposition of a lithium salt in an electrochemical cell, said method comprising including in said cell a dialkylamide additive which neutralizes acid attack of said salt.

12.

A method for preventing breakdown of a lithium metal oxide cathode active material in an electrochemical cell by overcharge to an electrochemical breakdown voltage, said method comprising, including in said cell DMAC (dimethylacetamide) which absorbs excess charge energy at a voltage less than the breakdown voltage of said cathode active material.

13.

The method of claim 12 wherein the active material is lithium manganese oxide having a breakdown voltage of about 5 volts and said DMAC characterized by absorbing excess energy at a breakdown voltage less than that of said lithium manganese oxide.